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Abbrevi

3 : the quality of being deep 4 : the degree of intensity ⟨~ of a color⟩; *also* : the quality of being profound (as in insight) or full (as of knowledge) 5 : the quality or state of being complete or thorough ; THOROUGHNESS ⟨~ of indexing⟩ ⟨a study will be made in ~⟩ — **depth·less** \'depth-ləs\ *adj*

depth charge *n* (1917) : an explosive device for use underwater esp. against submarines that is designed to detonate at a predetermined depth — called also *depth bomb*

depth perception *n* (ca. 1909) : the ability to judge the distance of objects and the spatial relationship of objects at different distances

depth psychology *n* (1924) : PSYCHOANALYSIS; *also* : psychology concerned esp. with the unconscious mind

dep·u·ta·tion \,dep-yə-'tā-shən\ *n* (14c) 1 : the act of appointing a deputy 2 : a group of people appointed to represent others

de·pute \di-'pyüt\ *vt* **de·put·ed; de·put·ing** [ME *deputen* to appoint, fr. MF *deputer*, fr. LL *deputare* to assign, fr. L, to consider (as), fr. *de-* + *putare* to consider] (14c) : DELEGATE

dep·u·tize \'dep-yə-,tīz\ *vb* **-tized; -tiz·ing** *vt* (ca. 1730) : to appoint as deputy ~ *vi* : to act as deputy — **dep·u·ti·za·tion** \,dep-yət-ə-'zā-shən\ *n*

dep·u·ty \'dep-yət-ē\ *n, pl* **-ties** [ME, fr. MF *député*, pp. of *deputer*] (15c) 1 a : a person appointed as a substitute with power to act b : a second-in-command or assistant who usu. takes charge when his superior is absent 2 : a member of the lower house of some legislative assemblies

de·rac·i·nate \(')dē-'ras-ᵊn-,āt\ *vt* **-nat·ed; -nat·ing** [F *déraciner*, fr. MF *desraciner*, fr. *des-* de- + *racine* root, fr. LL *radicina*, fr. L *radic-, radix* — more at ROOT] (1599) : UPROOT — **de·rac·i·na·tion** \(,)dē-,ras-ᵊn-'ā-shən\ *n*

de·rail \di-'rā(ə)l\ *vb* [F *dérailler* to throw off the track, fr. *dé-* de- + *rail*, fr. E] *vt* (1850) 1 : to cause to run off the rails 2 : to throw off course ~ *vi* : to leave the rails — **de·rail·ment** \-mənt\ *n*

de·rail·leur \di-'rā-lər\ *n* [F *dérailleur*, fr. *dérailler*] (ca. 1947) : a mechanism for shifting gears on a bicycle that operates by moving the chain from one set of exposed gears to another

de·range \di-'rānj\ *vt* **de·ranged; de·rang·ing** [F *déranger*, fr. MF *desrengier*, fr. *de-* + *reng* place — more at RANK] (1776) 1 : to disturb the operation or functions of 2 : DISARRANGE ⟨hatless, with tie *deranged* —G. W. Stonier⟩ 3 : to make insane — **de·range·ment** \-mənt\ *n*

der·by \'dər-bē, *esp Brit* 'där-\ *n, pl* **derbies** [Edward Stanley †1834, 12th earl of *Derby*] (1844) 1 : any of several horse races held annually and usu. restricted to three-year-olds 2 : a race or contest open to all comers or to a specified category of contestants ⟨bicycle ~⟩ 3 : a man's stiff felt hat with dome-shaped crown and narrow brim

derby 3

de·re·al·iza·tion \(,)dē-,rē-ə-lə-'zā-shən, -,ri-ə-\ *n* (1942) : a feeling of altered reality that occurs often in schizophrenia and in some drug reactions

de·reg·u·la·tion \(,)dē-,reg-yə-'lā-shən\ *n* (1965) : the act or process of removing restrictions and regulations — **de·reg·u·late** \(')dē-'reg-yə-,lāt\ *vt*

¹der·e·lict \'der-ə-,likt\ *adj* [L *derelictus*, pp. of *derelinquere* to abandon, fr. *de-* + *relinquere* to leave — more at RELINQUISH] (1649) 1 : abandoned esp. by the owner or occupant : RUN-DOWN 2 : lacking a sense of duty : NEGLIGENT

²derelict *n* (1670) 1 a : something voluntarily abandoned; *specif* : a ship abandoned on the high seas b : a tract of land left dry by receding water 2 : a destitute homeless social misfit : VAGRANT, BUM

der·e·lic·tion \,der-ə-'lik-shən\ *n* (1597) 1 a : an intentional abandonment b : the state of being abandoned 2 : a recession of water leaving permanently dry land 3 a : intentional or conscious neglect : DELINQUENCY ⟨~ of duty⟩ b : FAULT, SHORTCOMING

de·re·press \,dē-ri-'pres\ *vt* (1962) : to activate (a gene) by releasing from a blocked state — **de·re·pres·sion** \-'presh-ən\ *n*

de·ride \di-'rīd\ *vt* **de·rid·ed; de·rid·ing** [L *deridēre*, fr. *de-* + *ridēre* to laugh — more at RIDICULOUS] (1530) : to laugh at contemptuously 2 : to subject to usu. bitter or contemptuous ridicule *syn* see RIDICULE — **de·rid·er** *n* — **de·rid·ing·ly** \-'rīd-in-lē\ *adv*

de rigueur \də-(,)rē-'gər\ *adj* [F] (1833) : prescribed or required by fashion, etiquette, or custom : PROPER

de·ri·sion \di-'rizh-ən\ *n* [ME, fr. MF, fr. LL *derision-, derisio*, fr. L *derisus*, pp. of *deridēre*] (15c) 1 a : an act of deriding b : a state of being derided 2 : an object of ridicule or scorn : LAUGHINGSTOCK

de·ri·sive \di-'rī-siv, -zīv; -'riz-iv, -'ris-\ *adj* (ca. 1662) : expressing or causing derision — **de·ri·sive·ly** *adv* — **de·ri·sive·ness** *n*

de·ri·so·ry \di-'rī-sə-rē, -zə-\ *adj* (1618) 1 : expressing derision : DERISIVE 2 : worthy of derision ; RIDICULOUS

de·riv·able \di-'rī-və-bəl\ *adj* (1653) : capable of being derived

der·i·vate \'der-ə-,vāt\ *n* (1660) : DERIVATIVE

der·i·va·tion \,der-ə-'vā-shən\ *n* (15c) 1 a (1) : the formation of a word from another word or base (as by the addition of a usu. noninflectional affix) (2) : an act of ascertaining or stating the derivation of a word (3) : ETYMOLOGY 1 b : the relation of a word to its base 2 a : SOURCE, ORIGIN b : DESCENT, ORIGINATION 3 : something derived : DERIVATIVE 4 : an act or process of deriving 5 : a sequence of statements (as in logic or mathematics) showing that a result is a necessary consequence of previously accepted statements — **der·i·va·tion·al** \-shnəl, -shən-ᵊl\ *adj*

¹de·riv·a·tive \di-'riv-ət-iv\ *n* (15c) 1 : a word formed by derivation 2 : something derived 3 : the limit of the ratio of the change in a function to the corresponding change in its independent variable as the latter change approaches zero 4 a : a chemical substance related structurally to another substance and theoretically derivable from it b : a substance that can be made from another substance in one or more steps

²derivative *adj* (ca. 1530) 1 : formed by derivation 2 : made up of or marked by derivative elements — **de·riv·a·tive·ly** *adv* — **de·riv·a·tive·ness** *n*

de·rive \di-'rīv\ *vb* **de·rived; de·riv·ing** [ME *deriven*, fr. MF *deriver*, fr. L *derivare*, lit., to draw off water, fr. *de-* + *rivus* stream — more at RISE] *vt* (14c) 1 a : to take or receive esp. from a specified source b : to obtain from a specified source; *specif* : to obtain (a chemical substance) actually or theoretically from a parent substance 2 : INFER, DEDUCE ; *archaic* : BRING 4 : to trace the derivation of ~ *vi* : to have or take origin : come as a derivative *syn* see SPRING — **de·riv·er** *n*

derm- *or* **derma-** *or* **dermo-** *comb form* [NL, fr. Gk *derm-, dermo-*, fr. *derma*, fr. *derein* to skin — more at TEAR] : skin ⟨*dermal*⟩ ⟨*dermotropic*⟩

-derm \,dərm\ *n comb form* [prob. fr. F *-derme*, fr. Gk *derma* skin ; covering ⟨*ectoderm*⟩

-der·ma \'dər-mə\ *n comb form, pl* **-dermas** *or* **-der·ma·ta** \-mət-ə\ [NL, fr. Gk *dermat-, derma* skin] : skin or skin ailment of a (specified) type ⟨*scleroderma*⟩

derm·abra·sion \,dər-mə-'brā-zhən\ *n* (ca. 1954) : surgical removal of skin blemishes or imperfections (as scars or tattoos) by abrasion (as with sandpaper or wire brushes)

der·mal \'dər-məl\ *adj* (ca. 1803) 1 : of or relating to skin and esp. to the dermis : CUTANEOUS 2 : EPIDERMAL

der·map·ter·an \(,)dər-'map-tə-rən\ *n* [NL *Dermaptera*, order name, fr. *derm-* + Gk *pteron* wing — more at FEATHER] (ca. 1859) : any of an order (Dermaptera) of insects consisting of the earwigs and usu. a few related forms — **dermapteran** *adj* — **der·map·ter·ous** \-tə-rəs\ *adj*

dermat- *or* **dermato-** *comb form* [Gk, fr. *dermat-, derma*] : skin ⟨*dermatitis*⟩ ⟨*dermatology*⟩

der·ma·ti·tis \,dər-mə-'tīt-əs\ *n* (1876) : inflammation of the skin

der·mat·o·gen \(,)dər-'mat-ə-jən\ *n* [ISV] (1882) : the outer primary meristem of a plant or plant part

der·ma·to·glyph·ics \,dər-mət-ə-'glif-iks\ *n pl but sing or pl in constr* [*dermat-* + Gk *glyphein* to carve + E *-ics* — more at CLEAVE] (1926) : skin patterns; *esp* : patterns of the specialized skin of the inferior surfaces of the hands and feet 2 : the science of the study of skin patterns — **der·ma·to·glyph·ic** \-ik\ *adj*

der·ma·tol·o·gy \,dər-mə-'täl-ə-jē\ *n* (1819) : a branch of science dealing with the skin, its structure, functions, and diseases — **der·ma·to·log·ic** \-mət-ᵊl-'äj-ik\ *or* **der·ma·to·log·i·cal** \-i-kəl\ *adj* — **der·ma·tol·o·gist** \-mə-'täl-ə-jəst\ *n*

der·ma·tome \'dər-mə-,tōm\ *n* [ISV *dermat-* + *-ome*] (1926) : the lateral wall of a somite from which the dermis is produced — **der·ma·to·mal** \,dər-mə-'tō-məl\ *adj*

der·ma·to·phyte \(,)dər-'mat-ə-,fit, 'dər-mət-\ *n* [ISV] (1882) : a fungus parasitic on the skin or skin derivatives (as hair or nails) — **der·ma·to·phyt·ic** \(,)dər-,mat-ə-'fit-ik, ,dər-mət-\ *adj*

der·ma·to·sis \,dər-mə-'tō-səs\ *n, pl* **-to·ses** \-,sēz\ (1866) : a disease of the skin

-der·ma·tous \'dər-mət-əs\ *adj comb form* [Gk *dermat-, derma* skin] : having a (specified) type of skin ⟨*scleroderm*atous⟩

der·mes·tid \(,)dər-'mes-təd\ *n* [deriv. of Gk *dermēstes*, a leather-eating worm, lit., skin eater, fr. *derm-* + *edmenai* to eat — more at EAT] (1891) : any of a family (Dermestidae) of beetles with clubbed antennae that are very destructive to dried meat, fur, wool, and insect collections — **dermestid** *adj*

der·mis \'dər-məs\ *n* [NL, fr. LL *-dermis*] (ca. 1830) : the sensitive vascular inner mesodermic layer of the skin — called also *corium, cutis*

-der·mis \'dər-məs\ *n comb form* [LL, fr. Gk, fr. *derma*] : layer of skin or tissue ⟨*endodermis*⟩

der·moid cyst \,dər-,mȯid-\ *n* (1872) : a cystic tumor often of the ovary that contains skin and skin derivatives (as hair or teeth) — called also *dermoid* \'dər-,mȯid\

der·mo·tro·pic \,dər-mə-'trō-pik, -'träp-ik\ *adj* (1926) : attracted to, localizing in, or entering by way of the skin ⟨~ viruses⟩

der·nier cri \,dern-,yā-'krē\ *n* [F, lit., last cry] (1896) : the newest fashion

der·o·gate \'der-ə-,gāt\ *vb* **-gat·ed; -gat·ing** [LL *derogatus*, pp. of *derogare*, fr. L, to annul (a law), detract, fr. *de-* + *rogare* to ask, propose a law) — more at RIGHT] *vt* (15c) : to cause to seem inferior : DISPARAGE ~ *vi* 1 : to take away a part so as to impair : DETRACT 2 : to act beneath one's position or character — **der·o·ga·tion** \,der-ə-'gā-shən\ — **de·ro·ga·tive** \di-'räg-ət-iv, 'der-ə-,gāt-\ *adj*

de·rog·a·to·ry \di-'räg-ə-,tōr-ē, -,tȯr-\ *adj* (1502) 1 : detracting from the character or standing of something — often used with *to* or *of* *from* 2 : expressive of a low opinion : DISPARAGING ⟨~ remarks⟩ — **de·rog·a·to·ri·ly** \-,räg-ə-'tōr-ə-lē, -'tȯr-\ *adv*

der·rick \'der-ik\ *n* [obs. *derrick* hangman, gallows, fr. *Derick*, 17th cent. Eng. hangman] (1727) 1 : a hoisting apparatus employing a tackle rigged at the end of a beam 2 : a framework or tower over a deep drill hole (as of an oil well) for supporting boring tackle or hoisting and lowering

der·ri·ere *or* **der·ri·ère** \,der-ē-'e(ə)r\ *n* [F *derrière*, fr. *derrière, adj*, behind, fr. L *de retro*, fr. *de* from + *retro* backward, fr. OF *deriere* adv., behind, fr. L *de retro*, fr. *de* from + *retro* backward] (1774) : BUTTOCKS — more at DE-, RETRO-

der·ring-do \,der-iŋ-'dü\ *n* [ME *dorring don* daring to do, fr. *dorren* (gerund of *dorren* to dare) + *don* to do] (14c) : daring action ⟨deeds of ~⟩

der·rin·ger \'der-ən-jər\ *n* [Henry *Deringer* †1869 Am. inventor] : a short-barreled pocket pistol

der·ris \'der-əs\ *n* [NL, genus name, fr. Gk. skin, fr. *derein* to flay] more at TEAR] (1919) 1 : any of a large genus (*Derris*) of leguminous tropical Old World shrubs and woody vines including sources of rotenone 2 : a preparation of sons and esp. commercial sources of rotenone derris roots and stems used as an insecticide

der·vish \'dər-vish\ *n* [Turk *derviş*, lit., beggar, fr. Per *darvēsh*] : a member of a Muslim religious order noted for devotional (as bodily movements leading to a trance) 2 : one that dances with or as if with the abandonment of a dervish

des- *prefix* [F *dés-*, fr. OF *des-* — more at DE-] : DE- 6 ⟨vowels ⟨*desoxy-*⟩

de·sa·cral·ize \(')dē-'sā-krə-,līz, -'sak-rə-\ *vt* **-ized; -iz·ing** divest ceremonially of supernatural qualities

de·sal·i·nate \(')dē-'sal-ə-,nāt *also* -'sā-lə-\ *vt* **-nat·ed; -nat·ing** : DESALT — **de·sa·li·na·tion** \(,)dē-,sal-ə-'nā-shən *also* -,sā-lə-\ **sa·li·na·tor** \(')dē-'sal-ə-,nāt-ər *also* -'sā-lə-\ *n*

de·sa·li·nize \(')dē-'sal-ə-,nīz *also* -'sā-lə-\ *vt* **-nized; -niz·ing** SALT — **de·sa·li·ni·za·tion** \(,)dē-,sal-ə-nə-'zā-shən *also* -,sā-lə-\

de·salt \(')dē-'sȯlt\ *vt* (1904) : to remove salt from — **de·salt·er**

USPTO Patent Full-Text and Image Database

Searching 1976 to present...

Results of Search in 1976 to present db for:
(ACLM/"derived from" AND ACLM/"polynucleotide"): 345 patents.
Hits 1 through 50 out of 345

Next 50 Hits

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Refine Search ACLM/"derived from" and aclm/"polynucleotide"

	PAT. NO.	Title
1	6,667,155	Carrier for gene detection and its use for detecting validity of interferon therapy
2	6,653,075	Random domain mapping
3	6,649,371	Potassium channel KCNQ5 and sequences encoding the same
4	6,645,933	Receptor ligand VEGF-C
5	6,645,746	Carbonyl reductase, gene thereof and method of using the same
6	6,642,375	Fluorescent substances
7	6,642,052	Efficient generation of adenovirus-based libraries by positive selection of adenoviral recombinants through ectopic expression of the adenovirus protease
8	6,632,631	Methods for the identification of inhibitors of homocitrate synthase as antibiotics
9	6,627,193	Methods and compositions for control of blood coagulation
10	6,613,583	Electrochemiluminescent label based on multimetallic assemblies
11	6,610,506	Transferrin binding proteins of Pasteurella haemolytica and vaccines containing same
12	6,610,477	Human DNA mismatch repair proteins
13	6,610,303	Papilloma viruses, products for the detection thereof as well as for treating diseases caused by them
14	6,605,467	Fusion protein comprising the whole or part of the PP65 protein of human CMV, useable in particular for preparing a vaccine
15	6,605,449	Synthetic ligation reassembly in directed evolution
16	6,602,705	Expression of HIV polypeptides and production of virus-like particles
17	6,596,296	Drug releasing biodegradable fiber implant
18	6,593,110	Checkpoint-activating oligonucleotides

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Searching 1976 to present...

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ACLM/"derived from" AND ACLM/transposon: 40 patents.
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Refine Search ACLM/"derived from" AND ACLM/transposon

	PAT. NO.	Title
1	6,505,126	Method to identify fungal genes useful as antifungal targets
2	6,391,614	Auxiliary gene and protein of methicillin resistant bacteria and antagonists thereof
3	6,329,181	Helper functions for recombinant vector production
4	6,306,625	Method for obtaining expression of mixed polypeptide particles in yeast
5	6,303,381	Insertion sequence
6	6,297,031	Escherichia coli strain and method for producing L-threonine
7	6,291,214	System for generating recombinant viruses
8	6,258,571	High throughput DNA sequencing vector
9	6,207,883	DNA sequences coding for a protein conferring male sterility
10	6,156,574	Methods of performing gene trapping in bacterial and bacteriophage-derived artificial chromosomes and use thereof
11	6,143,530	Circular DNA expression cassettes for in vivo gene transfer
12	6,130,090	Methods of performing gene trapping in bacterial and bacteriophage-derived artificial chromosomes and use thereof
13	6,096,717	Method for producing tagged genes transcripts and proteins
14	5,965,791	Vector for introducing a gene into a plant, and methods for producing transgenic plants and multitudinously introducing genes into a plant using the vector
15	5,928,946	Lactic acid bacteria producing lantibiotics similar to nisin A
16	5,916,810	Method for producing tagged genes transcripts and proteins
17	5,837,509	Recombinant lactic acid bacterium containing an inserted promoter and method of constructing same
18	5,830,457	Recombinant beta-lactamase, usable as carrier molecule in immunogenic compositions
19	5,804,414	Method of amplifying genes using artificial transposons in coryneform bacteria

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hedral head (diam. ca. 60 nm) with a short tail (ca. 20 × 9 nm) attached at one vertex via a collar; it includes five or more proteins and ca. 2% by weight of fucose. Genome: linear dsDNA (MWt 2.6 × 10^7). Host: *Acholeplasma laidlawii*; plaques clear, minute. Infected cells are killed but not lysed; progeny virions seem to be released in membrane vesicles which subsequently rupture.

myalgia Muscle pain.

Myambutol *Syn.* ETHAMBUTOL.

myb An ONCOGENE originally identified as the transforming determinant in avian myeloblastosis virus (AMV: see AVIAN ACUTE LEUKAEMIA VIRUSES); v-*myb* is an altered form of a cellular sequence *amv*, differing from *amv* in gene structure, transcript structure, gene product structure, and in the intracellular location (nucleus) of its product [Book ref. 113, pp. 143–151]. v-*myb*$^+$ AMV can transform chicken haematopoietic cells in culture, but differs from other acutely transforming retroviruses in that it does not transform fibroblasts in culture; it causes a rapidly fatal leukaemia only in chickens.

myc An ONCOGENE originally identified as the transforming determinant of avian myelocytomatosis virus (MC29: see AVIAN ACUTE LEUKAEMIA VIRUSES). The MC29 v-*myc* product is a *gag-myc* fusion protein (P110$^{gag\text{-}myc}$) which has no protein kinase activity; it binds to dsDNA and occurs — possibly as a chromatin component — in the nucleus. In humans, c-*myc* is located on chromosome 8 and is involved in the pathogenesis of BURKITT'S LYMPHOMA. In chickens, c-*myc* activation by AVIAN LEUKOSIS VIRUSES appears to result in the development of lymphoid leukosis.

mycangium *Syn.* MYCETANGIUM.

Mycelia Sterilia See AGONOMYCETALES.

mycelium A group or mass of discrete hyphae (see HYPHA): the form of the vegetative thallus in many types of fungi and in certain bacteria (see ACTINOMYCETALES). (See also AERIAL MYCELIUM, SPROUT MYCELIUM; SUBSTRATE MYCELIUM; cf. PLECTENCHYMA.)

Mycena See AGARICALES (Tricholomataceae) and BIOLUMINESCENCE.

mycetangium (mycangium) In certain insects: a specialized region within which symbiotic fungi are carried; see e.g. AMBROSIA FUNGI and WOODWASP FUNGI.

mycetism (mycetismus) Poisoning due to the ingestion of certain mushrooms (MUSHROOM sense 1) — e.g. the poisonous species of *Amanita* or *Cortinarius*. (cf. MYCOSIS, MYCOTOXICOSIS; see also e.g. AMATOXINS, MUSCARINE and PHALLOTOXINS.) Mycetism can occur in e.g. sheep and cattle as well as in humans; thus, e.g. the toxins in *Cortinarius speciosissimus* are known to cause renal failure both in humans and in sheep. (See also ORELLANIN POISONING.)

mycetismus *Syn.* MYCETISM.

mycetocyte In certain invertebrates, particularly insects: a specialized cell which contains intracellular bacterial or fungal symbionts; if the endosymbiont is a bacterium the term BACTERIOCYTE may be used — although 'mycetocyte' is often used regardless of the nature of the endosymbiont. Mycetocytes may be irregularly distributed in certain tissues (e.g. the gut lining) or they may be aggregated into specialized organelles (*mycetomes*) which are usually associated with the gut. In at least some cases the microflora of the mycetome supplies essential nutrients to the insect host. (See also MYCETANGIUM and TROPHOSOME.) [Molecular biology of symbiotic bacteria in aphid mycetocytes: MS (1986) *3* 117–120.]

mycetoma (1) *Syn.* MADUROMYCOSIS. (2) (fungus ball) A tumour-like mycelial mass formed in the tissues in certain mycoses (see e.g. ASPERGILLOSIS and COCCIDIOIDOMYCOSIS).

mycetome See MYCETOCYTE.

mycetophagous *Syn.* MYCOPHAGOUS.

Mycetozoa A subphylum (phylum GYMNOMYXA) comprising two classes: Eumycetozoa (see EUMYCETOZOEA) and Acrasea (see ACRASIOMYCETES).

Mycoacia See APHYLLOPHORALES (Corticiaceae).

mycobacteriophage Any BACTERIOPHAGE which can infect one or more *Mycobacterium* spp. Most mycobacteriophages have a hexagonal head and a non-contractile tail (contractile in I3), and many are readily inactivated by organic solvents. Mycobacteriophages include both temperate and virulent types; in certain cases phage progeny may be released from the living host cell. [Book ref. 54, pp. 326–342.]

Mycobacterium A genus of Gram-positive, aerobic to microaerophilic, non-motile, asporogenous bacteria (order ACTINOMYCETALES, wall type IV) which are acid-fast during at least some stage of growth. Cells: straight or curved rods, ca. 0.2–0.8 × 1–10 μm, but may occur as coccoid forms, branched rods or fragile filaments; some strains are capsulated (see also MYCOSIDE C). Individual cells may stain uniformly or may exhibit banding or beading. The cells have a type IV cell wall (see ACTINOMYCETALES) which contains MYCOLIC ACIDS (see also CORD FACTOR, WAX D and PEPTIDOGLYCAN). Some strains form carotenoid pigments (see also PHOTOCHROMOGEN and SCOTOCHROMOGEN).

Species occur in soil as free-living saprotrophs, in water [review: JAB (1984) *57* 193–211], on plants, and as parasites and pathogens of man and other animals (including

fish). (See also LEPROSY, SCROFULA, TUBERCULOSIS.)

Metabolism is respiratory and, typically, chemoorganotrophic — though chemolithotrophic strains of e.g. *M. marinum* and *M. smegmatis* have been reported. In general, mycobacteria are not nutritionally fastidious — carbon and nitrogen sources including e.g. sugars, hydrocarbons and amino acids; in many species glycerol and asparagine are preferred sources of C and N, respectively. Growth may be stimulated e.g. by serum or egg-yolk (see also LOWENSTEIN–JENSEN MEDIUM), or by an increase in the partial pressure of CO_2. In 'slow-growing' strains, visible growth on solid media is not produced in less than 1 week (often 1–6 weeks) under optimum conditions, while in 'rapidly-growing' strains visible growth is produced within 1 week. [Nutrition/metabolism in mycobacteria: Book ref. 54, pp. 185–271; carbon metabolism in *M. leprae*: JGM (1983) *129* 1481–1495.]

Tests used in the identification of mycobacteria include e.g. the ARYLSULPHATASE TEST, catalase test (e.g. persistence of CATALASE activity after incubation at 68°C/20 min in neutral phosphate buffer: Book ref. 53, p. 1707), NIACIN TEST, NITRATE REDUCTION TEST, T2H TEST, and TWEEN HYDROLYSIS. [Clinical tests and methods: Book ref. 120, pp. 216–248.]

GC%: ca. 62–70. Type species: *M. tuberculosis*.

The genus (ca. 40 species: Book ref. 54) includes the following species (RG = rapidly growing; SG = slow growing).

M. africanum. SG; similar to *M. bovis*, but results are variable in the niacin and nitrate reduction tests. Can cause e.g. human tuberculosis.

M. avium. SG; non-pigmented. Typically: arylsulphatase −ve; catalase (68°C) variable; grows at 25–42°C; niacin −ve; nitrate not reduced; T2H test +ve; Tween hydrolysis −ve. Pathogenic e.g. for birds (cf. TUBERCULOSIS). (cf. *M. intracellulare, M. xenopi*.)

M. bovis ('*M. tuberculosis* var. *bovis*'). SG; non-pigmented. Microaerophilic. Typically: catalase (68°C) −ve; does not grow at 42°C; growth enhanced by pyruvate; niacin −ve; nitrate not reduced; T2H test −ve; Tween hydrolysis variable. A causal agent of TUBERCULOSIS in animals and in man. *M. bovis* BCG is a strain of *M. bovis* which differs e.g. in that growth occurs aerobically and is not enhanced by pyruvate. (See also BCG.) (cf. *M. africanum*.)

M. chelonei (= *M. chelonae*). RG; non-pigmented. Similar to *M. fortuitum* (q.v.) but

e.g. does not grow at 42°C; nitrate is not reduced.

M. farcinogenes. SG. Similar to *M. fortuitum* (according e.g. to DNA homology studies). A causal agent of bovine FARCY.

M. flavum. See XANTHOBACTER.

M. fortuitum. RG; non-pigmented. Typically: arylsulphatase +ve; grows at 42°C; Tween hydrolysis variable; nitrate is reduced. [DNA relatedness study of the *M. fortuitum–M. chelonae* complex: IJSB (1986) *36* 458–460.]

M. haemophilum. SG; non-pigmented. Requires haemin for growth. Grows at 30°C, not at 37°C. One strain, isolated from a skin granuloma.

M. intracellulare. SG; non-pigmented. Similar to *M. avium*, but typically arylsulphatase +ve; catalase (68°C) +ve; grows at 25–40°C (some strains grow at 40–45°C).

M. kansasii. SG; usually photochromogenic. Typically: arylsulphatase +ve; catalase (68°C) +ve; grows at 25–40°C, some strains grow at 42°C; niacin −ve; nitrate is reduced; T2H test +ve; Tween hydrolysis +ve. Can cause tuberculosis-like pulmonary lesions in man.

M. leprae. SG. The causal agent of LEPROSY. Can be cultured e.g. in the footpads of mice but, to date, has not been cultured in cell-free laboratory media. [Review: Book ref. 54, pp. 273–307; various aspects: Ann. Mic. (1982) *133*B 5–171.]

M. lepraemurium. SG; non-pigmented. The causal agent of murine leprosy. Limited growth has been reported to occur on egg-yolk media when very large inocula are used.

M. marinum. SG; photochromogenic. Typically: arylsulphatase +ve; catalase (68°C) +ve; grows at 30°C, but can grow at 37°C only after serial subculture; niacin −ve; nitrate not reduced; T2H test +ve; Tween hydrolysis +ve. Causes disease in fish, and skin granulomas in man [Arch. Derm. (1986) *122* 698–703]; more common in temperate than in tropical regions (cf. *M. ulcerans*).

M. microti. SG; non-pigmented. Similar to *M. tuberculosis*, but typically gives a variable nitrate reduction test and a negative T2H test.

M. paratuberculosis ('*M. johnei*'). SG; non-pigmented. Typically (few strains examined): catalase (68°C) +ve; niacin −ve; nitrate not reduced; T2H test +ve; Tween hydrolysis variable. (See also MYCOBACTINS.) Causal agent of JOHNE'S DISEASE.

M. phlei. RG; scotochromogenic. Typically: arylsulphatase −ve (at 3 days), variable (at 1 week); grows at 52°C; Tween hydrolysis +ve. Found e.g. in soil and on vegetation; not pathogenic in man.

M. scrofulaceum. SG; scotochromogenic. Typically: arylsulphatase −ve; catalase (68°C) +ve; grows at 25–42°C; niacin −ve; nitrate not reduced; T2H test +ve; Tween hydrolysis −ve.

M. senegalense. RG; scotochromogenic. A causal agent of bovine FARCY.

M. simiae. SG; some strains photochromogenic, others non-chromogenic. Generally similar to *M. scrofulaceum*, but the niacin test is +ve in some strains.

M. smegmatis. RG; non-pigmented. Typically: arylsulphatase (at 1 week) +ve; grows at 45°C; Tween hydrolysis +ve. Found in smegma; non-pathogenic.

M. thermoresistibile. RG; scotochromogenic. Typically: arylsulphatase −ve; grows at 52°C. Found e.g. in soil.

M. tuberculosis. SG; non-pigmented. Typically: catalase (68°C) −ve; does not grow at 42°C; growth enhanced by glycerol, not by pyruvate; niacin +ve; nitrate is reduced; T2H test +ve; Tween hydrolysis variable. Typically forms rough, raised, whitish/pale buff colonies. A causal agent of TUBERCULOSIS. (cf. *M. microti*.)

M. ulcerans. SG; pigmentation variable. Typically: catalase (68°C) +ve; grows at 30°C but not at 37°C; niacin variable; nitrate not reduced; Tween hydrolysis −ve. Causes BURULI ULCER; found in tropical regions e.g. on vegetation (cf. *M. marinum*).

M. xenopi. SG; pigmentation variable. Similar to *M. avium*, but e.g. does not grow at 25°C, grows poorly at 37°C, and has an optimum growth temperature of ca. 42–45°C. (See also TUBERCULOSIS.)

mycobactins A family of complex, lipophilic compounds which occur in the cell envelope in most species of *Mycobacterium* (not in *M. paratuberculosis* or in some strains of *M. avium*); they chelate trivalent metal ions, particularly solubilized ferric ions, and are believed to function in iron transport — iron being released after enzymic reduction to the ferrous form. For in vitro growth *M. paratuberculosis* needs mycobactin *or* e.g. ferric ammonium citrate. [Structure of mycobactins: Book ref. 54, pp. 242–245.] (See also EXOCHELINS and SIDEROPHORES.)

Related compounds occur in *Nocardia*.

mycobiont A fungal symbiont — e.g. in a LICHEN or MYCORRHIZA.

Mycobionta *Syn.* EUMYCOTA.

Mycocalia See NIDULARIALES.

Mycocaliciaceae See CALICIALES.

mycocecidia GALLS induced by fungi.

Mycocentrospora See HYPHOMYCETES; see also CROWN ROT.

mycochrome See PHOTOINDUCTION and PHOTOINHIBITION.

mycodextran *Syn.* NIGERAN.

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ws at 25–42°C; niacin −ve; nitrate
ed; T2H test +ve; Tween hydrolysis

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i4, pp. 242–245.] (See also EXO-
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fungal symbiont — e.g. in a
YCORRHIZA.
yn. EUMYCOTA.
NIDULARIALES.
e See CALICIALES.
ALLS induced by fungi.
a See HYPHOMYCETES; see also

See PHOTOINDUCTION and PHOTO-

Syn. NIGERAN.

Mycogone See HYPHOMYCETES; see also BUBBLE DISEASES.

mycoherbicide See BIOLOGICAL CONTROL.

mycolic acids α-Substituted, β-hydroxylated fatty acids (having the general formula R′CHOH.CHR″.COOH), esters of which are found in the cell walls of e.g. species of *Corynebacterium, Mycobacterium, Nocardia*, and *Rhodococcus*; in *Mycobacterium* spp the mycolic acids fall within the approximate range C_{60}–C_{90}, in *Nocardia* C_{40}–C_{60}, and in *Corynebacterium* C_{20}–C_{40}.

In mycobacterial mycolic acids R′ is usually a C_{50}–C_{60} chain which often includes double bonds, cyclopropane rings etc, while R″ is a C_{22}–C_{24} chain. [Structure and biosynthesis: Book ref. 54, pp.113–128. Mycolic acid patterns in various strains of *Mycobacterium*: JGM (1983) *129* 889–891; (1984) *130* 363–367, 2733–2736.] (See also WAX D.)

[Mycolic acids in *Corynebacterium* spp: JGM (1984) *130* 513–519.]

mycology The study of FUNGI.

mycoparasite A fungus which is parasitic on other fungi. Mycoparasites include e.g. *Christiansenia pallida* [life history: Mycol. (1984) *76* 9–22]; PIPTOCEPHALIS; and *Rozella* spp: endobiotic and holocarpic organisms which parasitize e.g. *Polyphagus euglenae* (itself a parasite of *Euglena* spp) [Mycol. (1984) *76* 1039–1048] and other fungi and algae. Some mycoparasites can apparently exert some control on pathogens of higher plants — e.g., in cases of CLOVER ROT, *Trichoderma viride* (or e.g. *Mitrula sclerotiorum*) can bring about a reduction of the numbers of sclerotia in the soil [Bot. Rev. (1984) *50* 491–504] [Susceptibility of e.g. *Pythium* spp to the mycoparasite *Pythium oligandrum*: SBB (1986) *18* 91–96.] (See also CONTACT BIOTROPHIC MYCOPARASITE.)

mycophagous (mycetophagous) Fungus-eating.

mycophenolic acid An ANTIBIOTIC produced e.g. by *Penicillium brevicompactum* in aerial hyphae formed on solid media [AEM (1981) *41* 729–736]. It has antimicrobial and antitumour activity, blocking GMP synthesis by inhibiting the formation of XMP from IMP (see Appendix V(a)).

Mycoplana A genus of Gram-negative, aerobic bacteria of uncertain taxonomic affinity; species occur e.g. in soil. The organisms form branching filaments which fragment into irregular, flagellated rods. Some strains can fix nitrogen under microaerobic conditions [JGM (1982) *128* 2073–2080]. GC%: ca. 64–69. [Book ref. 46, pp. 2118–2119.]

mycoplasma (1) A member of the class MOLLICUTES. (cf. MOLLICUTE.) (2) A member of the genus MYCOPLASMA.

Mycoplasma A genus of cell wall-less, sterol-requiring, catalase-negative bacteria (family MYCOPLASMATACEAE) which occur as parasites and pathogens e.g. in the respiratory and urogenital tracts in man and other animals; diseases caused by, or associated with, *Mycoplasma* spp include e.g. AIR SACCULITIS, BRONCHITIS, CONTAGIOUS BOVINE PLEUROPNEUMONIA, GLASSER'S DISEASE, NON-GONOCOCCAL URETHRITIS, ovine MASTITIS, and PRIMARY ATYPICAL PNEUMONIA (sense 2). (*Mycoplasma* spp are also common contaminants in TISSUE CULTURES.) Cells: typically non-motile (but see below) and pleomorphic, ranging from spherical, ovoid or pear-shaped (ca. 0.3–0.8 μm diam.) to branched filamentous forms of near-uniform diameter, several μm to ca. 150 μm in length; filaments, the typical forms in young cultures under optimum conditions, subsequently transform into chains of coccoid cells which later break up into individual cells that are capable of passing through membrane filters of pore size 0.22 μm or 0.45 μm. The cells of some species have a 'tip' structure (possibly part of a microfibrillar 'cytoskeleton') which may be involved in attachment to host cells, and which (in motile species) appears to have a role in GLIDING MOTILITY — the tip always pointing in the direction of motion.

The trilaminar cytoplasmic membrane contains sterols (in addition to e.g. phospholipids and proteins) — thus rendering the cells susceptible to POLYENE ANTIBIOTICS and to lysis by e.g. digitonin (which complexes sterols). Some species bear a capsule or slime layer — that in *M. mycoides* subsp. *mycoides* being a galactan.

Replication of the genome may precede cytoplasmic division; hence, 'multinucleate' filaments may exist for a time before individual cells are delimited by constriction. Budding can also occur.

Most *Mycoplasma* spp are facultatively anaerobic, some apparently being obligately anaerobic on primary isolation. All species are chemoorganotrophic. 'Fermentative' species can use sugars such as glucose (metabolized to e.g. lactic acid via the EMP pathway), while 'non-fermentative' species can use e.g. arginine. All species need cholesterol or related sterols (e.g. cholestanol or stigmasterol). The organisms have a flavin-terminated electron transport chain which lacks both quinones and cytochromes. NADH oxidase occurs in the cytoplasm (cf. ACHOLEPLASMA). Growth occurs on complex media (e.g. HAYFLICK MEDIUM); fastidious mycoplasmas may be grown on diphasic SP-4 medium [recipe: Book ref. 22, p. 746]. Colonies (usually <1 mm diam.) are typically of the 'fried egg' type: an opaque, granular central region, embedded in the agar, surrounded by non-

granular surface growth. Optimum growth temperature of mammalian strains: 36–37°C. Many species produce weak or clear haemolysis; haemolysis appears to be due to the secretion of H_2O_2 (a product which is believed to account for some aspects of pathogenicity). Mycoplasmas are commonly sensitive to chloramphenicol and to tetracyclines; most species can tolerate 1:2000/4000 thallous acetate. Broth cultures of *Mycoplasma* spp (supplemented with DMSO or glycerol) can be stored at −70°C; alternatively, broth cultures may be lyophilized. GC%: ca. 23–40. Type species: *M. mycoides*.

The genus currently contains over 60 species which are differentiated on the basis of certain tests: e.g., utilization of glucose and mannose, arginine hydrolysis, phosphatase production, the FILM AND SPOTS reaction, and haemadsorption.

M. glycophilum. A new avian species [JGM (1984) *130* 597–603].

M. laidlawii. Re-classified as *Acholeplasma laidlawii*.

M. mycoides. Non-motile cells which often form repeatedly branching filaments. Under certain conditions a culture may contain cells called *rho*-forms; a *rho*-form contains an intracellular organelle (function unknown) which consists essentially of an axial fibre (ca. 40–120 nm diam.) extending the length of the cell and occupying a major part of the cell's volume. *M. mycoides* subsp. *mycoides* causes contagious bovine pleuropneumonia.

M. pneumoniae (Eaton's agent). A slowly-growing species which causes a primary atypical pneumonia in man. On primary isolation, the colonies (after 5–10 days' incubation) are ca. 50–100 μm in diameter and are entirely granular, i.e., they are not typical 'fried egg' colonies; fried egg colonies generally develop on subculture. The organisms are generally highly sensitive to erythromycin.

T-strain mycoplasmas. See UREAPLASMA.

[Book ref. 22, pp. 742–770. *Mycoplasma* characterization: Book ref. 98. *Mycoplasma* evolutionary tree from 5S rRNA sequencing data: PNAS (1985) *82* 1160–1164.]

(See also MYCOPLASMAVIRUSES.)

mycoplasma virus type 1 phages *Syn.* PLECTROVIRUS.

mycoplasma virus type 2 phages *Syn.* PLASMAVIRIDAE.

Mycoplasmataceae A family of non-helical, sterol-requiring, cell wall-less bacteria of the order MYCOPLASMATALES. Two genera: MYCOPLASMA (urease-negative) and UREAPLASMA (urease-positive).

Mycoplasmatales An order of cell wall-less bacteria of the class MOLLICUTES; it comprises three families: MYCOPLASMATACEAE (non-helical cells which require sterols for growth), ACHOLEPLASMATACEAE (non-helical cells which do not require sterols), and SPIROPLASMATACEAE (cells often helical; sterols required for growth). [Book ref. 22, pp. 741–787.]

mycoplasmaviruses BACTERIOPHAGES which infect members of the MYCOPLASMATALES: see MV-L3 PHAGE GROUP, PLASMAVIRIDAE, PLECTROVIRUS, SPIROPLASMAVIRUSES. [Review: Intervirol. (1982) *18* 177–188.]

mycoplasmosis Any disease caused by a species of MYCOPLASMA (q.v.)

mycorrhiza A stable, usually mutualistic association between a fungus and the root (or rhizoid) of a plant. Mycorrhizas occur in the majority of plants, including vascular and some non-vascular species (e.g. liverworts). The fungi involved (e.g. basidiomycetes, ascomycetes, deuteromycetes) are always associated with the primary cortex of the root, and many appear never to occur as free-living saprotrophs. The formation of mycorrhizas leads to improved uptake of nutrients by the host plant; nutrients are apparently absorbed by hyphae (which may extend some distance from the root) and are transported back to the root to be released into the host tissue. Mycorrhiza formation and efficacy is greatest in nutrient-poor soils, and may be reduced or eliminated by application of soil fertilizers. Three major types of mycorrhiza are recognized.

Ectomycorrhizas ('ectotrophic mycorrhizas') occur mainly in temperate forest trees; the fungi involved include basidiomycetes (e.g. agarics, boletes), ascomycetes (e.g. *Tuber* spp) and zygomycetes (*Endogone*). A given tree may associate with more than one species of fungus. In an ectomycorrhiza the fungal hyphae occur on the root surface and may penetrate between the cortical cells of the root, but the cortical cells themselves are not penetrated. Typically, the host root becomes completely enclosed by a sheath of pseudoparenchymal fungal tissue (the *mantle*); hyphae from the mantle may penetrate the soil surrounding the root and also penetrate between the cortical cells of the root to enmesh individual cortical cells in a network of hyphae (the *Hartig net*). The root is morphologically distinct from an uninfected root: e.g., it lacks root hairs and a root cap; it is thicker than an uninfected root and may be a different colour; it may branch extensively and characteristically — e.g. pinnately (in *Fagus* spp) or dichotomously (in *Pinus* spp) — or not at all (e.g. in *Quercus* spp). In certain cases an ectomycorrhiza may develop in the form of nodules (= tubercles), each consisting of a rounded, dense mass of mycorrhizal roots.